

# SOME THERAPEUTIC DIETS



NATIONAL INSTITUTE OF NUTRITION  
Indian Council of Medical Research  
Hyderabad – 500 007, India.

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## PREFACE TO THE THIRD EDITION

This publication dealing with special diets for various disease conditions continues to be popular.

The Institute had recently conducted a country wide survey on hospital diets. The contents of this new edition have been revised based on the findings of this survey. Also the new recommended dietary allowances of ICMR have been taken into account. Several new diets including low purine and low phenylalanine diets have been incorporated in this edition. We hope that the readers will find this booklet useful.

P. G. TULPULE  
Director

National Institute of Nutrition  
Hyderabad – 500 007, A. P.  
May 1981.

## PREFACE TO THE FIRST EDITION

Dietetics has yet to find its rightful place in Indian therapeutics. A majority of even our teaching hospitals do not have qualified dietetians. An important factor which has probably contributed to the rather unsatisfactory position accorded to dietetics in India today, is the lack of authoritative information useful to physicians and nurses in the prescription of suitable therapeutic diets.

The present booklet should be considered as a brief outline of the major approaches towards the prescription of therapeutic diets in certain important clinical conditions.

C. GOPALAN  
Director

National Institute of Nutrition  
Hyderabad — 500 007, A. P.  
1969.

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## INTRODUCTION

It is true that each patient requires individual attention about his diet. His food preferences and his nutrient requirements have to be carefully considered. A set of standard therapeutic diets can be used as a guide for prescribing or formulating a diet. This brochure contains a few such diets.

The Nutrition Expert Group has recommended balanced diets suitable for normal adult males weighing about 55 kg. The therapeutic diets described here are appropriate modifications of this balanced diet. Only the quantities of foodstuffs to be used are given here. The menus may be planned according to the usual dietary pattern of the individual patient to ensure maximum acceptability of the modified diet.

Peptic ulcer and diabetic patients require a specific pattern of distribution of the nutrients and hence the menus for such diets are also included in this brochure.

The foodstuffs can be cooked according to the method the patient is used to. The amount of oil or ghee mentioned in the diets, is to be used for cooking purposes.

In the appendix, an exchange list is given. It can be used to ensure variety in the diet and to formulate new diets.

The foods, which must be strictly avoided by different patients are given along with each modified diet.

The nutritive value of all the foodstuffs except the sodium content of skimmed milk powder has been calculated using values given in the book 'Nutritive Value of Indian Foods' brought out by this Institute. The sodium content of skimmed milk powder was calculated according to the values given by Bills et al in the Journal of American Dietetic Association (25:304, 1949).

Volume of one katori used to measure the food is 150 ml.



## RECOMMENDED DIETARY ALLOWANCES FOR A MALE SEDENTARY WORKER\*

Net calories	2400 kcal
Proteins	55 g
Calcium	0.4-0.5 g
Iron	24 mg
Vitamin A	
Retinol or	750 $\mu$ g
$\beta$ Carotene	3000 $\mu$ g
Thiamin	1.2 mg
Riboflavin	1.4 mg
Nicotinic acid	16 mg
Vitamin B <sub>6</sub>	20 mg
Ascorbic acid	40 mg
Folic acid	100 $\mu$ g
Vitamin B <sub>12</sub>	1 $\mu$ g
Vitamin D	200 IU

---

\* As recommended by the ICMR

The diets contained in this booklet have been computed keeping in view these recommended allowances.

## 1. FULL DIET

This is a normal diet which is modified from the balanced diet recommended by ICMR. It provides all the nutrients in slightly higher amounts than recommended for a healthy male sedentary worker. It can be used for an adult patient (male or female) admitted in a hospital, who does not need any dietary modification.

This is also known as general or regular diet.

### Principle

The following foods should be avoided while formulating the diet.

1. All bran, coarse cereals
2. Too much of spices and condiments
3. Fried foods.

### Sample diet

Foodstuff	Vegetarian	Non-vegetarian
	g	g
Cereals	400	400
Pulses	70	50
Green leafy vegetables	50	50
Other vegetables	100	100
Roots and tubers	100	100
Fruits	100	100
Milk	400	200
Flesh foods	—	100
Sugar	20	20
Oil (for cooking)	20	30

## This diet provides

Calories	2450
Protein	77 g
Calcium	1.1 g
Iron	43 mg
Retinol	800 $\mu$ g
Thiamin	1.9 mg
Riboflavin	1.4 mg

## Distribution

### COOKED MEASURES

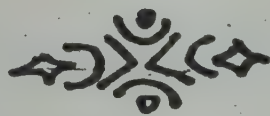
In different Meals	East India	West India	North India	South India
Bed tea (6 a.m.)	Tea 1 cup	Tea or Coffee 1 cup	Tea 1 cup	Coffee 1 cup
Breakfast (8-9 a.m.)				
Bread	6 slices	—	6 slices	—
Butter	1 tsp.	—	1 tsp.	—
Idli	—	4	—	4
Chutney	—	2 tbsp.	—	2 tbsp.
Milk with sugar	1 cup	1 cup	1 cup	1 cup
Lunch (12 noon- 1 p.m.)				
Rice	4 katories	2 katories	—	4 katories
Chapaties	—	3	5	—
Dal	1 1/2 katories	3 3/4 katories	1 1/2 katories	—

( contd... )

Sambar	-	-	-	1 katori
Green leafy vegetable with potato	1 katori	1 katori	1 katori	3/4 katori
Salad	One cucumber with 1/2 lime	One tomato	One cucumber with 1/2 lime	One tomato
Curd	1 katori sweet	1/2 katori	1 katori	1/2 katori
Orange or sweet lime	One	One	One	One
Dinner (6-7 p.m.)				
Rice	4 katories	2 katories	-	4 katories
Chapati	-	3	5	-
Dal	1 1/2 katori	3/4 katori	1 1/2 katori	-
Sambar	-	-	-	1 katori
Rasam	-	-	-	1 katori
Other vegetables with onions	1 katori	1 katori	1 katori	1 katori
Curd	-	1/2 katori	-	1/2 katori

Non-vegetarians can include :

1. Eggs two or mutton or fish curry 1 katori
2. Use 3 tsp. of extra oil to cook and cut down 1 cup of milk and dal for one meal.



## 2. HALF DIET

This diet provides the nutrients required for children, upto the age of 10 years. It is a normal diet which is modified from the balanced diet recommended for children, by ICMR. It can be used

for children who do not need any specific diet. This is also known as children's diet.

### Principle

The following foods should be avoided while formulating the diet.

1. All bran, coarse cereals
2. Too much of spices and condiments
3. Fried foods.

### Sample diet

Foodstuffs	Vegetarian	Non-vegetarian
	g	g
Cereals	225	225
Pulses	60	40
Green leafy vegetables	25	25
Other vegetables	75	75
Roots and Tubers	75	75
Fruits	100	100
Milk	400 ml	300 ml
Meat / Fish / Egg	—	50
Sugar	30	30
Oil (for cooking)	20	25

### This diet provides

Calories	1800
Protein	55 g
Calcium	972 mg

Iron	26 mg.
Retinol	520 $\mu$ g.
Thiamin	1.3 mg.
Riboflavin	1.1 mg.

Distribution of the diet can be done as for full diet.



### 3. KHICHERI DIET

It is a soft diet which provides most of the nutrients required by a male adult. It is slightly deficient in iron, calories or riboflavin. It is a transitional diet between the liquid diet and full diet.

#### Sample diet

Foodstuff	Amounts
	g
Rice	200
Green gram dal or lentil dal	70
Calabash cucumber or Ridge gourd	100
Potatoes & Onions	100
Orange or Sweet lime or Banana	200
Milk	400 ml
Eggs or	Two
Panir or Cheese	50
Sugar	30
Oil (to cook)	20

### **This diet provides**

Calories	2000
Protein	64 g
Calcium	890 mg
Iron	19.5 mg
Retinol	785 $\mu$ g
Thiamin	1.4 mg
Riboflavin	1.1 mg



### **4. MILK AND BREAD DIET**

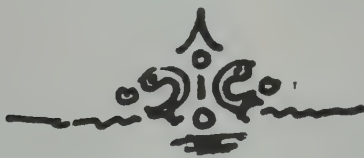
This is also a soft diet which provides all nutrients except calories, iron, and thiamin in the amounts required for an adult man. It is also a transitional diet between the liquid and full diet. It can be used for the patients who do not like khicheri diet.

#### **Sample diet**

<i>Foodstuff</i>	<i>Amount</i>
	<i>g</i>
Milk	1000 ml.
Bread	100
Potato	200
Banana or orange	200
Eggs or	Two
Panir or cheese	50
Sugar	50
Butter	30

**This diet provides :**

Calories	2000
Protein	62 g
Calcium	1810 mg
Iron	8.4 mg
Retinol	1504 $\mu$ g
Thiamin	1.1 mg
Riboflavin	1.7 mg



## **5. LIQUID DIET**

This diet is designed to give oral nourishment in the liquid form. It can be used for the patients who cannot tolerate solid or semi-solid foods. Since this diet does not provide enough nutrients it should not be continued for more than necessary time.

### **Sample diet**

<i>Foodstuff</i>	<i>Amount</i>
Milk	1000 ml
Fruit juice	1000 ml
Eggs	Two
Sugar	50 g

**This diet provides**

Calories	1400
Protein	52 g
Calcium	1760 mg
Iron	11.1 mg
Retinol	1100 $\mu$ g
Thiamin	1.4 mg
Riboflavin	1.8 mg



## **6. DIET FOR PREGNANT WOMAN**

This diet provides slightly higher amounts of protein, calories, minerals and vitamins than required for a normal woman. It can be given to a pregnant woman in the second and third trimester of pregnancy when there is extra demand for these nutrients because of the developing fetus.

### **Principle**

All the foodstuffs available to the family can be taken by a pregnant woman. There is no specific taboo on any foodstuff.

### **Sample diet**

Foodstuffs	Sedentary work	Moderate work
	Vegetarian	Vegetarian
Cereals	445	475
Pulses	55	60
Green leafy vegetables	100	100

( contd...)

Other vegetables	40	40
Roots & Tubers	50	50
Milk	200	250
Fats and Oils	20	20
Sugar and Jaggery	30	30

---

**This diet provides about**

Calories	2200	2500
Proteins (g)	70	75
Fat (g)	40	50

Non-vegetarians can substitute the pulses with 2 eggs or 50 gms of meat or fish, plus 10 gms of fat.



## **7. DIET FOR NURSING WOMAN**

This diet provides slightly more of all nutrients than what are required by a normal woman. It can be used by a nursing mother throughout her lactation period.

All the foodstuffs available can be consumed by a lactating mother. There is no specific taboo on any foodstuff.

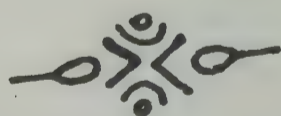
### Sample diet

Foodstuffs	Sedentary work Vegetarian	Sedentary work Vegetarian
Cereals	470	500
Pulses	70	75
Green leafy vegetables	100	100
Other vegetables	40	40
Roots & Tubers	50	50
Milk	200	250
Fats and Oils	30	35
Sugar & Jaggery	30	30

This diet provides about

Calories	2450	2750
Proteins (g)	75	80
Fat (g)	50	60

Non-vegetarians can substitute pulses with 2 eggs or 50 gms of meat or fish, plus 10 gms of fat.



## 8. BLAND DIET

A bland diet is a diet which is non irritating chemically and mechanically and which inhibits gastric secretion. It can be used for gastric and duodenal ulcer patients after acute symptoms have

subsided. With slight changes and reduction in fibre and fat content it can also be used for diarrhoea and ulcerative colitis.

### Principle

The following foods should be avoided while formulating the diet :

1. All bran, coarse cereals
2. Skin and seeds of fruits
3. Raw vegetables
4. Vegetables like cabbage, beans, ladies-fingers and bitter - gourd etc.
5. Spices and condiments
6. Fried foods
7. Strong beverages
8. Pickles, chutneys etc.
9. Tender coconut water
10. Chocolates, puddings and similar preparations
11. Meat extracts and soups.

### Sample diet

<i>Foodstuffs</i>	<i>Vegetarian</i>
	g
Rice	100
White bread	40
Pulses	40
Potatoes	75
Vegetables	100
Milk	1000 ml
Curd	300
Skimmed milk powder	15

Orange juice	150
Banana	50
Sugar	25
Butter	7
Ghee or Oil	25*

Note : Non-vegetarians can take a half-boiled egg instead of skimmed milk powder.

\* This amount can be used for cooking purposes.

#### This diet provides

Calories	2000
Protein	75
Fat	90 g
Carbohydrate	220 g

#### Distribution

##### Cooked measures

##### 7 A.M.

Milk	1 glass
Sugar	1 tsp.

Half boiled egg One

Or

Skimmed milk powder	3 tsp.
---------------------	--------

##### 10 A.M.

Toast	Two
Butter	1 tsp
Milk	1 glass
Sugar	1 tsp

##### Cooked measures

##### 1 P.M.

Soft boiled rice	2 katories
Sieved cauliflower and carrots	1 1/2 katories

Curd 1 katori

Sieved green gram dal (dehusked) 1/4 katori

##### 4 P.M.

Milk	1 glass
Sugar	1 tsp
Biscuits	Two
Banana	Half

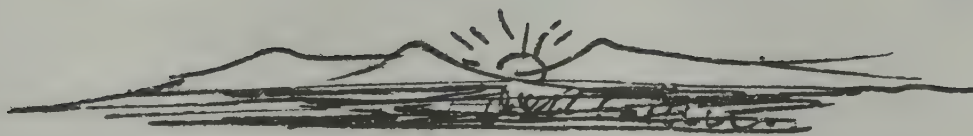
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7. P. M.

Soft boiled rice	2 katories
Sieved lentil dal	1/4 katori
Mashed Potato	1/2 katori
Curd	1 katori
Sieved Orange juice	1/2 glass

10 P. M.

Milk	1 glass
Sugar	1 tsp.



## 9. DIABETIC DIET

This diet is as close to the normal diet as possible so as to meet the nutritional needs and the treatment of the individual patient. This diet is low in carbohydrates, but adequate in other food principles.

### Principle

The following foods should be avoided in all diabetic diets :

1. Roots and tubers
2. Sweets, puddings and chocolates
3. Fried foods

4. Dried fruits and nuts
5. Sugar
6. Fruits like bananas, sapotas, custard, apple etc.

#### Sample diet

Foodstuffs	Vegetarian	Non-vegetarian
	g	g
Rice	100	100
Wheat flour	100	140
Pulses	65	30
Green leafy vegetables	150	150
Other vegetables	300	300
Ghee or Oil	30	30
Fruits	100	100
Milk (cow's)	500 ml	250 ml
Curd (cow's milk)	100	50
Chicken or Fish	-	50
Egg	-	One

#### This diet provides

Calories	1800
Protein	70 g
Fat	50 g
Carbohydrates	270 g

#### Distribution

#### Bed Tea

Coffee or Tea

#### Cooked measures

Vegetarian	Non-vegetarian
------------	----------------

1 cup

1 cup

### Breakfast

Tea or Coffee	1 cup	1 cup
Toast with a little butter	2	2
Egg	—	1

### Lunch

Rice	3 katories	2 katories
Sambar	1 katori	1 katori
Green leafy vegetables	1 katori	1 katori
Curd	1/2 katori	1/2 katori
Tomato or Citrus fruit	1	1
Pickle	1 piece	1 piece

### Tea

Tea or Coffee	1 cup	1 cup
Upma	3/4 katori	1 katori

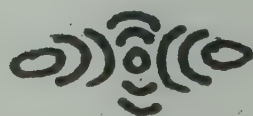
### Dinner

Chapati (Phulka)	2	2 1/2
Dal	1 katori	...
Curd	1/2 katori	...
Fish	...	1
Other vegetables with gravy	1 katori	1 katori
Other vegetables purial or dry	1 katori	1 katori
Roasted papad	1	1
Tomato or cucumber	1	1

Before going to bed	Milk	1 glass	1 glass
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5 tsp. of oil can be used in cooking.



## 10. LOW - CALORIE DIET

The diet provides less calories than the total energy requirements for the day : thus it provides for depletion of body fat. It is used in cases of obesity, cardiac disturbances and hypertension in over-weight individuals.

### Principle

The following foods should be avoided while formulating the diet:

1. Sweets, chocolates, jaggery, jam, honey, preserves, puddings, cakes etc.
2. Roots and tubers
3. Fried foods
4. Dried fruits and nuts
5. Alcoholic drinks and soft drinks unless they contain artificial sweetening agents instead of sugar
6. Cream and free fats
7. Fruits like banana, custard-apple sapota, dates etc.

### Sample diet

Foodstuffs	Vegetarian	Non-vegetarian
	g	g
Wheat flour	60	90
Rice	30	60
Other vegetables	200	200
Green leafy vegetables	200	200
Pulses	70	50
Citrus fruit or Tomato	200	200

( contd...)

Milk (cow's)	600 ml	250 ml
Skimmed milk powder	20	...
Oil or ghee	7	12
Lean meat or Fish	...	50
Egg	...	One

---

**This diet provides**

Calories	1200
Protein	60 g
Fat	30 g
Carbohydrates	170 g



## **11. HIGH - CALORIE DIET**

This is a normal diet supplemented with high calorie foods so that the bulk of the diet is not much increased. It can be used for fevers, convalescence after prolonged illness, leanness and hyperthyroidism.

### **Principle**

The following foods should be avoided if the patient is convalescing or having fever.

1. Fried foods
2. Dry fruits and nuts

## Sample diet

Foodstuffs	Weight of raw ingredients	
	Vegetarian	Non-vegetarian
	g	g
Cereals	250	300
Pulses	100	50
Roots and Tubers	50	75
Other vegetables	50	50
Green leafy vegetables	100	100
Bread	60	60
Butter	10	20
Milk	750 ml	300 ml
Curd	100	...
Sugar	50	50
Ghee or Oil	30	30
Banana	150	250
Egg	...	One
Meat or Fish	...	100

## This diet provides

Calories	2700
Protein	80 g
Fat	70 g



## 12. LOW FAT DIET

This is a normal diet modified to reduce the fat content to approximately 30 g. per day. It may be used in treating diseases with intolerance to fat such as gall bladder, liver and pancreatic diseases or in conditions of steatorrhea.

### Principle

The following foods should be avoided in such diets:

1. High fat foods like nuts, cheese etc.
2. Fried foods
3. Free fat and cream etc.

### Sample diet

Foodstuffs	Vegetarian	Non-vegetarian
	g	g
Cereals	200	250
Pulses	100	75
Cow's milk	...	100 ml
Skimmed milk powder	50	...
Curd (Cow's milk)	200	...
Green leafy vegetables	100	100
Other vegetables	100	100
Potatoes	50	50
Sugar	50	50
Banana	75	75
Orange	100	100
Ghee or Oil to cook	17	15
Chicken or Fish	...	100
Eggs	...	One

**This diet provides**

Calories	2100
Protein	75 g
Fat	30 g
Carbohydrates	385 g

[illegible]

### 13. LOW SODIUM DIET

This is a normal diet but with a low sodium content. The food preparations for this diet are cooked without extra salt and high sodium foods are avoided. This is designed for use in conditions where there is sodium retention like oedema, nephritis, cardiac diseases, toxæmia of pregnancy and hypertension.

## Principle

The following foods should be avoided while formulating the diet.

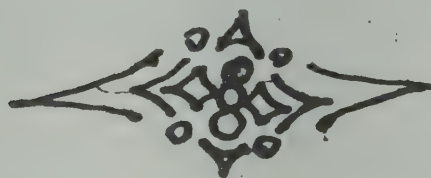
1. Salt in cooking or on table
2. Sea fish, salted meat and salted dry fish, liver etc.
3. Salted butter and cheese
4. All foods to which salt or baking soda has been added in cooking.
5. Pickles and chutneys.

## Sample diet

Foodstuffs	Vegetarian	Non-vegetarian
	g	g
Rice	250	300
Dal	100	75
Fruits	200	200
Vegetables	200	200
Potatoes	100	125
Milk (cow's)	600 ml	200 ml
Oil	30	30
Sugar	50	50
Meat or fish	...	50
Eggs	...	One

### This diet provides

Calories	2 200
Protein	70 g .
Sodium (as sodium)	0.5 g



## 14. LOW OXALIC ACID DIET

This is a normal diet with a low oxalic acid content. High oxalic acid foods are avoided. This is designed for use by the patients suffering from oxalate calculi.

## Principle

Foods rich in oxalic acid given in the list on page 36 should be avoided while formulating the diet.

## Sample diet

Foodstuffs	Vegetarian	Non-vegetarian
	g	g
Rice	200	200
Wheat flour	200	200
Red gram dal	50	35
Black gram dal	20	20
Cabbage	100	100
Cauliflower	75	75
Potato	75	75
Mango	30	30
Milk	200 ml	100 ml.
Oil	35	40
Sugar	30	30
Mutton or Rohu fish	—	30
Egg	—	30

## This diet provides

Calories 2400  
Protein 65 g  
Fat 50 g  
Carbohydrates 425 g

## 15. LOW PURINE, LOW FAT DIET

This is a rather restricted diet. It provides low purine and low fat, hence can be deficient in some nutrients like certain 'B' vitamins and iron if care is not exercised in menu planning. It is designed to be used for gout and gouty arthritis patients.

### Principle

The following foods should be avoided while formulating the diet.

1. Sweet breads, anchovies, sardines, liver, kidney, brain, pancreas, bacon, beef, lamb, pork, meat extracts and gravies.
2. Dried beans, peas and lentils.
3. Mushroom, cauliflower, and spinach.
4. Alcoholic beverages, chocolate, cocoa, tea and coffee except as specified.

### Sample diet

Foodstuffs	Quantity
	g
Rice or atta	200
Bread	50
Milk (cow's)	400 ml
Vegetables	500
Fruits	200
Sago	100
Egg	One
Oil	10
Sugar	30
Tea or Coffee	7

### **This diet provides**

Calories	2100
Protein	55 g
Fat	36 g

Some common foodstuffs with low amounts of purines are listed in the following table. These can be used in formulating low purine diets.

### **FOODS WITH INSIGNIFICANT AMOUNT OF PURINES**

<i>Vegetables</i>	<i>Cereals</i>	<i>Miscellaneous</i>
Beetroot	Maize	Butter, Oil
Brinjal	Rice	Cheese
Cabbage	Wheat	Cream
Calabash cucumber		Egg
Carrot		Fruits of all kinds
Cucumber		Gelatin
Ladies fingers		Milk
Lettuce		Nuts
Potato		Sugar and Sweets
Pumpkin		Tapioca
Sweet potato		Yeast
Tomato		
Turnips		

## 16. LOW PHENYLALANINE DIETS

These diets are deficient in most of the nutrients. They can be used for children of 6–12 months old (diet A) and 2–3 years old (diet B) suffering from Phenyl ketonosis. The younger children should be getting breast milk in addition to the diet :

### Principle

The following foods should be avoided while formulating the diet :

1. Wheat, bajra, barley, jowar and maize.
2. Redgram dal, horse gram, rajmah, bengal gram whole.
3. a) Agathi, bottle gourd leaves, carrot leaves, Fenugreek leaves, pumpkin leaves, spinach, tamarind leaves.  
b) Colocasia, yam, tender jack.
4. Almonds, gingelly seeds, groundnuts.
5. Hen egg, cow's milk, curd, cheese.

Foodstuffs	Diet A	Diet B
Age of child	6–12 months old	2–3 years old
	g	g
Rice	50	100
Dal	15	20
Vegetables	100	200
Fruits	100	100
Milk (Buffalo)	100 ml	100 ml
Sago	50	50
Sugar	10	20
Oil	10	20

**These diets provide**

Calories	800	1125
Protein	13.6 gm	22.3 g
Phenylalanine	235 mg	348 mg



## **17. LOW PROTEIN, LOW CARBOHYDRATE AND LOW SODIUM DIET**

This diet provides less protein, carbohydrate and sodium than recommended. It can be used for a diabetic patient who is suffering from acute glomerulonephritis or uremia and has high blood pressure.

### **Principle**

The following foods are avoided while formulating the diet :

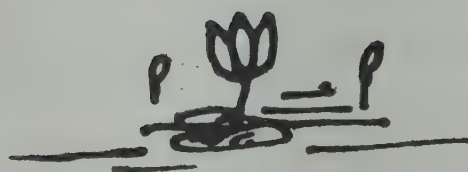
1. Sugar, sweets, puddings, chocolates, preserves
2. Salt in cooking or on table
3. Roots and tubers like potato, sweet potato, beetroot, yam, arbi.
4. Dried fruits and nuts
5. Fruits like banana, sapota, custard apple
6. Sea fish, salted meat, salted dry fish, liver
7. All foods to which salt or baking soda has been added in cooking
8. Salted butter and cheese
9. Pickles and chutneys
10. Alcoholic beverages.

## Sample diet

Foodstuffs	Amount
	g
Sago	150
Rice or atta	100
Pulses	15
Vegetables	400
Milk	50 ml
Orange or Sweet lime	200
Oil	35

## This diet provides

Calories	1500
Protein	27 g
Fat	40 g
Fat carbohydrate	260 g
Sodium	0.3 g



## APPENDIX – EXCHANGE LISTS

### VEGETABLE EXCHANGE A

These vegetables may be used as desired. Carbohydrates and calories are negligible.

<i>Leafy vegetables</i>	<i>Other vegetables</i>
Amaranth	Ash gourd
Bathua	Bitter gourd
Brussels sprouts	Brinjal
Cabbage	Calabash/Cucumber
Celery	Cauliflower
Coriander leaves	Cho -Cho (Marrow)
Curry leaves	Cucumber
Fenugreek/leaves	Drumstick
Lettuce	French beans
Mint	Knol -khol
Rape leaves	Ladies -fingers
Spinach	Mango, green
Soya leaves	Onion stalks
	Parwar
	Plantain flower
	Pumpkin
	Radish
	Rhubarb stalks
	Ridge gourd
	Snake gourd
	Tinda
	Tomato, green
	Turnip

## VEGETABLE EXCHANGE B

Carbohydrates - 10 g      Calories - 50

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### Root vegetables

Quantity ( g )

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Beetroot	75
Carrot	105
Colocasia	45
Onion, big	90
Onion, small	75
Potato	45
Sweet potato	30
Tapioca	30
Yam (elephant)	60
Yam	45

### Other vegetables

Artichoke	60
Broad beans	90
Cluster beans	90
Double beans	50
Jack, tender	105
Jackfruit seeds	30
Leeks	60
Peas	45
Plantain, green	75
Singhara	45

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## FRUIT EXCHANGE

Carbohydrates - 10 g.

Calories - 50.

Fruit	Quantity g.	Approximate number or Size.
Amla	90	20 medium
Apple	75	1 small
Banana	30	1/4 medium
Cape gooseberry	150	40 small
Cashew fruit	90	6 medium
Custard apple	15	2
Dates	45	1 small
Figs	60	1/4 small
Grapes	105	20
Grape fruit	150	1/2 big
Jack fruit	60	3 medium pieces
Jambu fruit	50	10 big
Lemon	90	1 medium
Loquat	105	6 big
Mango	90	1 small
Mangosteen	75	2 medium
Melon	270	1/4 medium
Orange	90	1 small
Papaya	120	1/4 medium
Peach	135	2 small
Pear	90	1 small
Pine apple	90	1 1/2 slices (round)
Plum	120	4 medium
Pomegranate	75	1 small
Strawberry	105	40
Sweet lime	150	1 medium
Tomato	240	4 small
Water melon	175	1/4 small

## CEREAL EXCHANGE

30 g provide Calories : 100, Carbohydrates : 20g Protein : 2g

Bajra	Rice flakes
Barley	Rice puffed
* Bread	** Sago
Cholam (Jowar)	Samai
Corn flakes	Semolina (Suji)
Maize, dry	Vermicelli (Savian)
Oatmeal	Wheat flour
Ragi	Wheat, broken (dalia)
Rice	White flour

\* To meet carbohydrates and calories add 5g. sugar.

\*\* Requires supplementation with other high protein foods, when used.

## LEGUME AND PULSE EXCHANGE

30 g provide Calories : 100, Carbohydrates : 15g Protein : 6g

Bengal gram	Kabuli Channa (White gram)
Bengal gram, roasted	Lentils
Besan (Bengal gram flour)	Moth beans
Black gram	Peas, dried
Cow gram	Rajmah
Green gram	Rawan
Horse gram	Red gram

## FLESH FOOD EXCHANGE

Calories - 70

Protein - 10 g

Food	Quantity (g)
Beef	60
Crab	120 Nos.
Egg, duck*	2 Nos.
Egg, hen*	2 Nos.
Fish, gib	60
Fish, small	60
Fish, Vajra	60
Fowl	60
Liver, Sheep	60
Mutton muscle*	60
Pigeon	50
Pork	60
Prawn	60

\* Provides 100 calories

## MILK EXCHANGE

Calories - 100

Protein - 5 g

Food	Quantity
Butter milk	750 ml
Cheese	30 kg
Curd	210 g
Khoa	30 g
Milk, Buffaloe	90 ml
Milk, Cow	180 ml
Milk, Skimmed*	260 ml
Milk, Skimmed, powder*	30 g

\* Provides 10 g protein.

## FAT EXCHANGE

Calories 100.

Fat. 11 g.

Food	Quantity (g)
Almonds	15
Butter	15
Cashewnuts	20
Coconut	30
Ghee	11
Groundnuts roasted	20
Hydrogenated fat (vanaspati)	11
Oil (coconut, mustard)	11
Pistachionut	15
Walnuts	15

## FOODS RICH IN OXALIC ACID

Horse gram	Rhubarb (stalk)
Khesari dal	Almonds
Amaranth, tender	Cashewnuts
Curry leaves	Garden cress seeds
Drumstick leaves	Gingelly seeds
Gogu (pitwa or ambadi)	Amla
Mustard leaves	Phalsa
Neem leaves, tender	Wood apple
Paruppu Kerai (kulfa)	Bhangari
Spinach	Chookri -ka -atta
Tamarind leaves, tender	Chookri -ka -Pota
Drumstick leaves	Ripe Chillies
Lotus stem, dry	Cocoa
Plantain flower	Tea
Plantain, green	

## NOTES





